



FIG. 1.—LEAVES OF GRAPE VINE; *a* showing usual infection of *Uncinula*; *b, c* showing infection, by crawling animal.

The photograph from which the figures were made was kindly prepared by Mr. M. B. Griffith of Columbus, Ohio.—F. L. STEVENS, *The University of Chicago*.

#### A NEW SILPHIUM.

*Silphium lanceolatum*, n. sp.—Stems about three feet high, slender, glabrous, striate, bearing a few small partly clasping bracts: leaves all at or near the base of the stem on long and slender petioles, lanceolate in outline, acute at summit, and very tapering at the base, thin but coarse, somewhat undulate toothed or nearly entire, four to eight or more inches long, the edges and midrib beneath somewhat hairy, otherwise smooth: heads few (one to three as far as seen), terminating the long slender branches or main stem, the former of which are bracteate at base and bibracteate an inch or two above: involucre very smooth, the outer scales orbicular, the inner (three or four) oblong and twice as long as the outer, obtuse and thin at summit: achenia broadly

obovate, narrowly winged, having a broad and shallow emargination at summit without cusps; rays not seen.

Collected on Chickamauga battlefield, Georgia, October 6, 1898.

The affinity of this plant is with *S. terebinthinaceum*, from which, however, it is very different. It is evidently more nearly allied to Elliott's *S. pinnatifidum*, which I have not seen, but it does not agree with his description.—WM. M. CANBY, *Wilmington, Del.*

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## OPEN LETTERS.

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### IMPERFECTIONS OF LABORATORY MATERIAL

THE experimenter must be keenly alive to possible imperfections of the material of which his apparatus is constructed, a fact made apparent by a recent experience in this laboratory with a bleeding-pressure demonstration. The demonstration consisted of a T-tube filled with water, attached to the stump of a plant, and to the short arm an open manometer, filled with mercury. The pressure of the exuding sap set up a difference of level between the columns of mercury in the arms of about 8<sup>cm</sup>. After this point had been reached the mercury remained stationary and the sap appeared to be passing the mercury in some manner, as it appeared in an increasing amount on top of the mercury in the free arm of the manometer, finally filling it and overflowing at a height of 60<sup>cm</sup>. This puzzling action was explained by the fact that the manometer tube showed a minute groove throughout its entire length on the inner side of the wall so small that it could not be entered or filled by the mercury. This permitted a constant stream of water to pass by into the other arm of the manometer. Of the many things which may occur to disconcert the beginner in studying root-pressure, the above is doubtless one of the most unusual.—D. T. MACDOUGAL, *University of Minnesota.*